Abstract

This invention provides a new photocatalyst material producing apparatus and photocatalyst material producing method that can produce a large quantity of photocatalyst material of high quality by a chemical reaction in light high-field plasma in a highly oxidative high-concentration ozone medium state, instead of systems to produce a photocatalyst material by PVD and CVD, which are conventional dry deposition methods.

In a photocatalyst material producing method and photocatalyst material producing apparatus according to this invention, a pair of facing electrodes are provided via a dielectric material in a discharge gap where gas mainly containing oxygen gas is supplied, and an AC voltage is applied between the electrodes to generate dielectric barrier discharge (silent discharge or creeping discharge) in the discharge gap. Thus, oxygen gas containing ozone gas is created and a metal or metal compound is modified to a photocatalyst material by the dielectric barrier discharge.